THE DIVERSION OF THE FLOUR AND GRAIN TRAFFIC FROM THE GREAT LAKES TO THE RAILROADS.

I.

PREVIOUS to 1850 the importance of the great interior water routes cannot easily be overestimated. The commerce of the great agricultural states of the West drifted to the two great natural waterways, the Mississippi River running to the South, and the Great Lakes and their eastern outlets, the Erie Canal and the Welland Canal in conjunction with the St. Lawrence River, running to the East. Although the West possessed these two unrivaled waterways, yet there were but few localities which could choose between the two. Physical conditions usually left no choice. To the settler near the lakes the eastern route was the only available highway, and to the farmer living near the banks of the Mississippi the river was the only possible route. This was the case because land transportation was well-nigh impossible. The value to the states bordering on the Great Lakes of the lake and canal route from the date of the opening of the latter in 1825 down to the middle of the century, and even for a number of years thereafter, is incomputable. Over the Great Lakes and through the canal passed the bulk of the surplus products of the West and practically the whole of the merchandise shipped from the East to the West.

To realize fully the importance of the water routes, even up to a comparatively late day, it is necessary to understand the services it was intended the early railroads should render. They were designed to connect waterways, not to compete with them. Before the construction of railroads the traffic of the country that was other than local in character moved upon and to and from one of our four great waterways. These were the Atlantic Ocean on the east, the Great Lakes and the Erie Canal and St.

Lawrence on the north, the Mississippi River and its tributaries on the west, and the Gulf of Mexico on the south. This being the situation, the railroads which were intended to serve anything more than local needs sought to co-operate with one of these waterways, and the projectors of nearly all the railroads which it was hoped would become trunk lines sought to connect two or more of the four great water routes. The construction of the great trunk lines clearly shows this, and nothing could more strongly emphasize the importance of the lake route at this early day than the uniformity with which the railroads sought it. A glance at a railroad map of the later fifties will also clearly show that the water routes formed the base of all the great transportation systems. In some cases it is true the water routes were paralleled, but these instances were comparatively rare, and even in these cases the railroads were not regarded as competitors of the water routes for through traffic in heavy commodities. Passenger traffic, local business, and through freight in the more valuable commodities were the main reliance of the railroads.

This state of affairs, however, was very much changed in the twenty years covered by the period from 1860 to 1880. These two decades were replete with improvements in rail transportation. Advances, to be sure, were also made in water transportation, but the progress made in land carriage was much the greater. Limitations of space forbid a detailed presentation of the improvements introduced that made the railroads effective competitors of the lake carriers — nothing more than an enumeration of the most important advances can be attempted. Progress was made in all departments. The permanent way was improved by reduction of grades, better alignment of track, improved drainage and ballasting, and better bridges. But far more important than these improvements was the introduction of steel rails. It is doubtful if the railroads could ever have become effective competitors of the lake carriers without steel rails, for the latter, although of transcendent importance in themselves, became doubly significant because of the advance along various lines that they made possible. The greatest of these

improvements was made in the rolling stock. With stronger tracks much heavier engines could be built and cars could be loaded more heavily. Steel was in a large measure substituted for iron in the construction of locomotives; a great saving was made by the change from iron to steel tires. With a very slight increase in the dead weight of cars the carrying capacity was doubled. There was also great progress made in making up and running of trains. The consolidation of connecting lines (and the extension of other lines by lease or by new construction or by purchase) which had set in before 1860 became a feature of railroad history during the period covered by the years intervening between 1860 and 1880. By consolidation the cheap and expeditious movement of freight between distant points was greatly furthered. About the largest expense of transportation in the early days was the transhipment charges. Consolidation did much to obviate the necessity of frequent transfers of freight. But even after consolidation had made considerable progress the extended movement of bulky freight remained subject to many delays and charges due to transshipment at connecting points. These evils were in a large measure overcome by the organization of through freight lines. But one more advance can be mentioned—it is scientific rate making. This has revolutionized railroad transportation. In the primitive days of railroading the toll sheets showed but little differentiation of charges. The principle of charging what the traffic would bear was never applied with anything like thoroughness. The decisive change in rate making came when it was recognized that it may be profitable to establish a rate which will result in a net gain, however small, above the expenses arising strictly from the mere handling and moving of freight and such incidental expenses as are properly applicable to it. In other words, it is not always to be insisted upon that any given traffic must bear its full share of the total expenses of the road; the question is rather, will this traffic form a profitable auxiliary of the existing traffic.

By the early seventies the long list of improvements which have been enumerated, and others of less importance but never-

theless of great moment in the aggregate, had progressed so far as to change the relation existing between the lake carriers and the railroads.[1] The latter were now in a position to enter into effective competition with the lakes in the transportation to the seaboard of the agricultural products of the West. As a very large portion of the east-bound traffic from the West was at this time composed of agricultural products, nearly the entire east-bound business now became competitive.[2] In 1876 it was estimated that grain and flour constituted about 50 per cent. of the entire eastward movement of through freights.[3]

It must not be understood that rail rates — from Chicago to New York, for example — were now normally lower than, or even so low as, the lake rates; for such was not the case. Rail rates had, however, fallen so much that, taken in connection with several positive advantages offered by rail transportation, rail rates were more advantageous than were the lake rates, even though the latter were usually lower. It may be well, at this point, to state that the transportation charges as published in the *Statistical Abstract* and in the reports of boards of trade are not to be accepted without modification. The lake charges are approximately correct, but the rail charges are generally too high. The latter are averages of the officially published tariffs, but men in a position to speak authoritatively say that practically no grain is shipped at these rates. Now, as the difference between the lake and the rail rates is not so great as the nominal difference, the additional advantages which the rail lines must afford in order to compensate for their higher charges need not be so great as would at first be supposed. Shipment by rail

[1] Long before this the railroads had demonstrated their ability to compete with canals.

[2] In this statement is not included the lumber and ore traffic of what is known as the Lake Superior region.

[3] *Internal Commerce of the United States*, 1876, p. 67. The total shipments east from Chicago during the year 1878 amounted to 4,862,385 tons; to this sum, grain, flour, seeds, and feed contributed 3,137,032 tons, or a little more than 64 per cent. Almost the whole of the balance was made up of animals and their products.—*Ibid.*, 1879, p. 99.

obviates transshipment with its costs. So far as through shipments from Chicago to New York are concerned, the cost of transfer does not weigh either way with the shipper, for it falls upon the carrier, and he looks to the through rate which he receives for reimbursement. In case the flour or grain is not forwarded on a through bill of lading the cost of transshipment falls upon the shipper. Grain carried by "wild" vessels, that is, vessels which have no rail connections and are not running under contract, but fix their rates from day to day as business may determine, is not carried on through bills of lading and the owner of the grain would therefore pay the terminal charges. These terminal charges consist of the elevator charges and those for shoveling and trimming the grain in the hold of the vessel. Much of the flour and grain sent to local points about the lakes cannot be sent on through bills of lading and would therefore be obliged to pay the terminal charges. In some cases the shipper, after his flour and grain have arrived at a lower lake port, finds it to his advantage to ship his grain further on. In such instances the through rate generally cannot be obtained and the owner of the grain pays the terminal charges. Most of the elevators at the lower lake ports are owned by railroads which operate them in connection with water lines. This being the case, and as most of the grain shipped over the lakes is carried on through bills of lading, it may legitimately be inferred that the amount of grain which has been diverted from the lakes because of the excessive elevator charges at the lower lake ports is not so great as has often been imagined, and it may further be inferred that the completion of the new elevators at Buffalo, which are to be independent of the elevator pool, will not greatly increase the amount of grain carried over the lakes.[1]

During the process of transshipment there is some loss of grain, but as the lake carriers deliver the amount for which they

[1] Perhaps in the above discussion the importance of the "wild" or tramp vessels has not been sufficiently recognized. These vessels do not run in connection with any railroad, and as a consequence the vessel and the grain which it carries pay the full elevator charge. Now, if the elevator charges were lower there can be no doubt but that "wild" vessels would be a more important factor in lake transportation than

give receipts, the shipper loses nothing. In this particular the shipper rather favors the lake route, for the railroads refuse to receipt for a definite amount, and as a consequence any loss in transit falls upon the shipper unless he can clearly prove that there was a loss in transit—which he usually finds it very difficult to do.

As railroads are responsible for the safe delivery of the goods placed in their care the shipper does not insure his property, which he would feel obliged to do should he consign his property by the lakes.[1] Grain carried in cars during the seasons of the year when grain is likely to heat, arrives in better condition than if sent by water; grain already somewhat damaged by heat always goes better by rail. Expedition is sometimes very desirable and the railroads deliver commodities with greater dispatch than the lake carriers. And finally the terminal facilities of the railroads are much better than those of the water lines, and by patronizing the railroads shippers are often enabled to save considerable sums in the form of cartage charges. This is more true of flour, corn, and oats than of wheat, for the last is not delivered directly to consumers, but is first delivered to millers who have terminal facilities. Flour, corn, and oats, on the other hand, although generally not delivered directly to consumers are, however, delivered to persons at least one step nearer the consumers than are the millers who receive the wheat.

When the railroads found that they could successfully compete with the waterways it was discovered that the lack of suitable terminal facilities at the seaboard cities for transferring grain from cars to ocean vessels and for storage became a serious handicap. Down to about 1865 none of the trunk lines possessed elevator facilities on the Atlantic coast. At this time there was an elevator built at a wharf on the Delaware, in Phila-

they are now, but to what extent their importance would be increased it is difficult to estimate.

The elevator charges at Buffalo for a series of years are given in the Appendix on page 414.

[1] In 1872 the rate of insurance was about $1 on the $100 (*Transportation Routes to the Seaboard*, vol. i. p. 17). It is now about thirty cents on $100.

delphia, under the patronage of the Pennsylvania Railroad Company, and this was probably the first stationary elevator erected on the Atlantic coast.[1] Up to the close of the year 1870 the Baltimore and Ohio Railroad Company was the only road which had already provided adequate terminal facilities for the handling of grain.[2] New York City, although the chief port of the export grain business, did not possess a single stationary elevator.[3] The use of elevators would have necessitated the adoption of the western method of handling grain by "grades." The custom of selling grain on sample had become too firmly fixed by fifty years of habit to be easily uprooted, and especially so, as such a departure would seriously impair the value of enormous vested interests of the very persons who were expected to make the change. The great expense involved in the old method of handling grain if shipped in bulk at the railroad terminals, and the great reductions made by the introduction of elevators will be seen by the following statement made up by the general freight agent of the Baltimore and Ohio Railroad: "Previous to January 1872 all grain shipped to Baltimore in bulk was unloaded by hand, at an expense of from four to five cents per bushel. At that time the company completed an elevator of 600,000 bushels capacity, and reduced the charge for receiving, weighing, wharfage, delivery to vessels and storage for ten days, to 1¾ cents per bushel, by which means also the detention to vessels in loading was reduced from five or ten days to as many hours.[4] Two years later, when the Baltimore and Ohio entered Chicago and became an aggressive competitor for a share in the movement of agricultural products from the West, all the other trunk lines were forced to improve their terminal facilities. Without proper facilities for handling grain at the seaboard no road could meet the competition of the lake and canal route, for this line possessed fairly satisfactory terminals. The transfer charge of from four to five cents was sufficient to turn

[1] *Development of Transportation Systems in the United States*, RINGWALT, p. 211.

[2] *Report of the Select Committee on Transportation Routes to the Seaboard*, vol. i. p. 27.

[3] *Ibid.*, vol. ii. p. 346.

[4] *Ibid.*, vol. i. p. 27.

grain to the lake and canal route. Not only was the movement of grain by rail checked by the high charges at the seaboard terminals, but it was at times entirely inhibited by the lack of facilities for removal of grain from cars. Mr. C. M. Gray, assistant general freight agent of the Lake Shore and Michigan Southern Railroad, in testifying before the Senate committee on transportation routes to the seaboard, stated that the lack of terminal facilities at the seaboard for promptly unloading cars had resulted in such a shortage of cars on the Pittsburg, Fort Wayne and Chicago, and Michigan Central in the winter of 1872–3 that these roads were practically forced to suspend the movement of bulky freight for a period of six weeks because of a lack of cars. His own road, the Lake Shore and Michigan Southern, was reduced to such straits by the dearth of cars that it was forced "to cut off all freight west of Chicago and receive nothing except the local freight of Chicago."[1]

Up to within very recent times our government has taken but little interest in our internal commerce and has therefore collected but little information concerning it and thus it is impossible to set forth as definitely and accurately as might be desired the diversion of the grain business from the Great Lakes to the railroads. We shall in the main be forced to rely for statistics upon the reports of the commercial bodies of the cities chiefly concerned in the grain business, and unfortunately they have not collected as full information as could be desired. From the two sources, however, enough information can be obtained to present fairly the change which has taken place; but this cannot always be done in the simplest manner.

The diversion of the flour and grain traffic from the lakes to the railroads will be considered under the following heads: (1) the diversion of the flour and grain business as shown by the movement of these commodities by lake and rail from Chicago; (2) the diversion (if any there be) as shown by such data as we have of the total eastward movement, and (3) the export movement from the West through the gulf ports.

[1] *Transportation Routes to the Seaboard*, vol. ii. p. 280.

II.

THE LAKE AND RAIL TRAFFIC EASTWARD FROM CHICAGO.

In the early sixties the railroads began to make serious inroads into the flour business from Chicago and during the eighth decade secured the lion's share of this business. Flour was the first heavy commodity of comparatively low value that the railroads carried in competition with the water lines. The railroads gained this traffic, partly because shipment by lake to points not accessible to lake craft involved a transshipment, and flour could not be transferred with the same ease and facility that grain could be transshipped; partly because barrels are broken in this process and in passage if rough weather be encountered; and finally because expeditious delivery is frequently demanded—the elements of time being of much greater importance in the movement of flour than in that of grain. To these causes may be added a fourth—the cost of marine insurance. The diversion from the lakes to the railroads of the traffic in flour will be seen from the table on page 415 of the Appendix. It will be noted that from the opening of the seventh decade the railroads rapidly monopolized the business and continued to do so until the year 1888. Since 1887 the relative importance of the rail lines has diminished. It is also to be noted that the flour business of Chicago reached its maximum volume in 1887.

The decline of the rail business is closely associated with this fact. Until 1888 the bulk of the flour shipped from the West passed through Chicago. But in 1888 by the completion of the Minneapolis, St. Paul, and Sault Ste. Marie Railway[1] much of the flour business was diverted from Chicago. This line, in connection with the Canadian Pacific and lake vessels, at once

[1] Since 1882 the construction of a railroad from Minneapolis and St. Paul to the north of Lake Michigan and the lower lakes to the seaboard had been much discussed by the millers and shippers of these two cities. Such a line, it was hoped, would be of signal advantage to the interests of these two cities and of the entire Northwest, for by this road not only the distance to the seaboard would be materially shortened in comparison with the circuitous route around the head of Lake Michigan, but the uncertainty of a speedy movement through the freight yards of Chicago would also be obviated.

became a strong competitor for the flour and grain business of the Northwest. During the year 1888 it forwarded from Minneapolis 931,500[1] barrels of flour, and as almost the whole of this would have been through rail business had it gone through Chicago, the rail movement of flour from Chicago was reduced by almost the whole of this amount. Since 1888 the shipments of Minneapolis flour over this road have rapidly increased, and as a consequence the rail movement from Chicago has diminished.[2] Since 1887 shipments of flour to the ports at the head of Lake Superior have also greatly increased, and the combined rail and water route formed by the Wisconsin Central and the Ann Arbor Car Ferry Line, and the Flint and Pere Marquette Railroad, has recently entered the field for a portion of the flour business which formerly passed through Chicago.

For many years the long-distance traffic of the railroads was almost wholly confined to the transportation of live animals, provisions, and general merchandise. As we have seen, however, at a comparatively early day the railroads secured a large portion of the flour business. In 1872[3] they became in the fullest

[1] *Report of Minneapolis Chamber of Commerce*, 1888, p. 157.

[2] The yearly shipments of flour from Minneapolis as given in the *Reports of the Minneapolis Chamber of Commerce* have been as follows:

Year	Barrels	Year	Barrels	Year	Barrels
1888.....	931,502	1891.....	1,200,642	1894.....	1,458,146
1889.....	1,367,792	1892.....	1,684,005	1895.....	2,111,455
1890.....	1,156,516	1893.....	1,720,166	1896.....	2,419,914

[3] The following table covers the period in which the great change took place:

Eastward shipments of wheat from Chicago

Year	By lake (bushels)	By rail (bushels)
1870.....	13,429,069	2,621,699
1871.....	12,120,923	576,468
1872.....	8,831,870	2,363,810
1873.....	15,528,984	8,149,209
1874.....	16,974,149	9,729,251

sense competitors of the lakes for the wheat traffic. Up to this time, although they had in various years carried considerable quantities of wheat, they had never been regarded by the lake carriers as serious rivals.

In the spring of 1872 the railroads entered the field for a part of the grain traffic, and secured a liberal portion of it throughout the season of navigation; in the following year the struggle was continued, the railroads securing a large share of the business. Since 1873 the contest has been maintained. In some years the railroads have made great encroachments into the traffic and in other years the lake carriers have almost monopolized the business. Shipments by rail almost equaled those by lake in 1881 and again in 1885. Since the latter year the lakes have held their own, and in some years have captured nearly all the wheat; during the year 1896, however, the railroads secured a large portion of the shipments. The yearly movement by each mode of transportation since 1860 is made clear by the figures given in the Appendix on page 415.

In the years previous to 1873, with some exceptions, most of the wheat taken from Chicago by the railroads was secured in the winter months when lake navigation was closed. Since 1873 the largest rail shipments have often been made after the navigation season had fully opened.[1]

[1] The seriousness of the competition offered by the railroads at times during the navigation season will be made evident by the following table:

Year	Shipments during the month of May		Nominal difference of rates in favor of the lake and rail route as against the all-rail route
	Lake	Rail	
			Cents
1872	272,591	340,584	2.0
1873	1,823,310	947,902	6.0
1874	2,367,796	1,210,352	7.0
1875	1,160,435	735,666	10.0
1876	1,810,340	1,114,137	1.0
1877	755,962	270,110	3.6
1878	902,958	1,369,732	3.1

Internal Commerce, 1876, charts 2 and 3; and *Internal Commerce*, 1879, Appendix,

In shipping by rail the marine insurance is avoided, the grain is less liable to damage in transit, is moved more rapidly, and marketed more readily, thus giving quicker returns and thereby saving interest charges; but these advantages combined were not sufficient to overcome the additional rail charge which was frequently exacted. It is safe to say that the marine insurance in all but exceptional cases was less than one cent per bushel and the difference in time between the all rail and the lake and rail was not a large factor. The danger from heating in special cases would be very great and in others it would quite disappear. For May 1875 the difference in rates amounted to ten cents, and with such a variation it is surprising that the railroads should have secured any wheat at all. With a fuller knowledge of the situation, however, this will be readily understood. The published rates were not the real rates. Says Mr. E. H. Walker, statistician of the New York Produce Exchange, "During a portion of the year 1875 the transportation by rail has been by the agreed schedule of rates."[1] The implication is that rates were generally not maintained. From January to October the rates given in the *Internal Commerce Reports* remained stationary, then fell one cent for October, but recovered for November and rose to twenty-eight cents for December. The statistician of the New York Produce Exchange[2] says that rates were very low from the opening of the year until October, when they advanced very sharply. He also informs us that flour and grain were carried in large quantities from St. Louis to New York by all rail at twenty-four cents per one hundred pounds, which would be equivalent to fifteen cents per bushel.[3] It is hardly to be supposed that the rate from Chicago to New York was maintained at twenty-four cents with a rate of fifteen cents from St. Louis. That railroad rates were not stable during the year 1875 is also testified to by Mr. Charles

pp. 246–7. The fourth column of the table shows a surprising amount of freight secured by the railroads in view of the great difference which frequently obtained in rates.

[1] *New York Produce Exchange*, 1874–5, p. 231.

[2] *Ibid.*, 1874–5, pp. 231–5.

[3] *Ibid.*, 1874–5, p. 232.

Randolph in his report as secretary for the Chicago Board of Trade.[1]

In a general way it may be said that the corn traffic has followed the same course as the wheat traffic. The railroads appear, however, to have secured a considerable share of this business at an even earlier time than they obtained a large part of the wheat traffic. During the years 1868, 1869, and 1870 the railroads carried considerable quantities of corn, and then for five years transported but little of this commodity. In the movement of this important crop the year 1876 was the decisive turning point. The crop of corn grown in 1875 was large and of good quality and the export demand was steady and strong, so the grain was moved rapidly forward by rail. Throughout 1876 the rail routes competed vigorously with the lake lines, and obtained a large share of the traffic. During the months of May and June 6,208,706 bushels of corn were shipped from Chicago by lake, and 5,588,830 bushels by rail.[2]

Since 1876 the railroads have maintained a struggle for this business, and the outcome has been more favorable to them than the issue of their contest for the wheat traffic. This is highly gratifying to the railroads, for the amount of corn transported vastly exceeds that of wheat. The amount of corn carried by rail during the year 1884 was almost equal to that transported by lake; during the following year the shipments by rail again almost equaled those by lake, the amounts being respectively 28,590,374 and 29,382,591 bushels. Corn, as it usually contains a larger percentage of moisture than wheat, is more liable to heat when placed in unfavorable surroundings. It is therefore desirable when the grain is not in the best of condition, and during the germinating season when it is particularly prone to heating, to ship it in cars, where it will not be gathered together in large masses and where the air has a better chance to come in contact with it, than in the holds of vessels where it is collected in

[1] *Report of Chicago Board of Trade*, 1875, pp. 18, 19.

[2] *Internal Commerce*, 1876, chart No. 3. Navigation opened before the first of May.

immense quantities in damp surroundings. The greater success which has attended the efforts of the railroads to gain the corn traffic than has resulted from their attempts to secure the wheat traffic from the lake carriers is probably due to the fact that the danger of heating in the case of corn is much greater than in that of wheat.

We have now considered the partial diversion from the lakes to the railroads of the flour, wheat, and corn shipped from Chicago to the East. There yet remains to be considered the movement of oats—the one grain not yet considered which is shipped eastward in large quantities. Rye and barley, the other important cereals, are not transported in sufficient amounts to warrant separate treatment; during 1896 the aggregate shipments by lake and rail from Chicago amounted to but 10,490,496 bushels.[1] Their movement may be inferred in a general way from the discussion of the transportation of the other grains.

At a very early date, as will be seen by an examination of the table on page 416 of the Appendix, the transportation of oats by rail assumed an important position. During 1862, 1863, 1864, and 1865 a very large portion of the oats carried out of Chicago was taken by the railroads. This was largely due to the exceptional conditions which prevailed. The principal contracts let all over the United States for supplying the armies in the South with oats were filled in Chicago. As a result the shipment of oats from Chicago during the war increased with surprising rapidity; for the year 1861 they amounted to only 1,633,237 bushels, while for the last nine months of 1864 and the first three months of 1865 they reached the large total of 16,470,927 bushels. As a natural consequence the railroads leading from Chicago were called upon to transport much of this grain, and as there were no railroads running far to the South, west of the Mississippi River, and but a single road crossing the Ohio River and running to the South through Kentucky, it became necessary to send commodities to the southeastern points by the roundabout eastern lines. After the war closed the movement of

[1] *Report of Chicago Board of Trade*, 1895, p. 3.

oats by rail diminished somewhat, but very shortly increased at a rapid rate, and in 1873 the shipments by rail greatly exceeded those by lake. From 1873 to 1886 the railroads secured almost the whole traffic, and in some years left but an insignificant amount to the lake carriers. Since the latter year the vesselmen have re-entered the field for this business and now obtain a large portion of it; but the railroads still hold the larger share.

The statistics of the movement of oats show that the railroads carried a larger proportion of this than of other grains. This is surprising, for oats is a commodity of comparatively low value and large bulk. The larger rail movement of oats is due to several causes. Oats take up moisture more readily than other grains and as a very small amount will cause oats to become musty, and thus unfit for horsefeed, this grain when not in the best of condition is generally shipped by rail. Recently there has been a device invented for "clipping" oats by which the portion that most freely absorbs moisture can be removed at slight expense. By "clipping" the weight of the measured bushel is also increased by some four to six pounds. During the germinating season grain is more liable to spoil and during this period it is safer to ship by rail. But there is another and far more potent reason for the unusually large rail movement of oats. It is the lake rates. These are fixed more upon the basis of bulk than of weight, and as oats is a bulky[1] product the freight per hundred pounds is considerably higher than on wheat and corn. Enough oats cannot be stowed away in the hold of a ship to secure a cargo equal in weight to that of the same ship loaded with wheat, and therefore it is necessary to fix a higher rate per hundred pounds upon oats than upon wheat. The grain car, on the other hand, is so large that there is no difficulty in loading it to its full carrying capacity with the bulky product oats, and as a consequence the rail rates on oats are no more

[1] The numbers 32, 56, and 60 represent, with a fair degree of accuracy, the weights of a like bulk of oats, corn, and wheat respectively. The measured bushel of oats weighs about 32 pounds, that of shelled corn 56, and that of wheat 60; the measured bushel of oats, however, more frequently exceeds 32 pounds than does that of wheat exceed 60 pounds.

per hundred pounds than those on wheat and corn. Lake rates per hundred pounds on oats are very much higher than the rates on wheat and corn; for example, the lake rate on oats per bushel for May 25, from Chicago to Buffalo, was 1⅛ cents and the rate upon corn per bushel for this day was the same. The rate on oats was equivalent to 3.516 cents per hundred pounds while the rate on corn was but 2.009 cents per hundred pounds.[1]

III.

THE TOTAL EAST-BOUND TRAFFIC.

An almost entire absence of statistics of the grain and flour transported over the railroads that tap the surplus grain-producing regions stretching far out to the south, west, and north of Chicago makes it wholly impossible to present anything approaching a satisfactory exposition of the general movement of these commodities. Thus far nearly all the facts we possess have been gathered under the direction of the commercial organizations of the cities in which the grain and flour business is centered. While these data are complete enough for many purposes, they are not sufficiently comprehensive to disclose the characteristics of the general movement of the cereals from the interior producing regions to the consuming districts of the East and South and to foreign countries. Thus far our general government has devoted but little attention to inland commerce; the reports on our internal commerce which have appeared up to this time have contained but little statistical matter which had not previously appeared in reports of transportation companies, boards of trade, produce exchanges, and chambers of commerce of our great trading centers. Two exceptions to this general statement may, however, be made—the government engineers sta-

[1] On page 417 of the Appendix may be found a table showing the all-rail through movement of Chicago. The statement shows the quantity of flour and grain received at Chicago over six leading western railroads, and delivered to connecting lines without passing through a Chicago warehouse, as reported by such roads. These quantities are all included in the general statements of shipments in Appendix, except shipments originating in Milwaukee; these are deducted from the shipments of Chicago as given in Table III of the Appendix, but are included in this.

tioned at the St. Mary's Falls Canal and at Detroit have compiled some valuable tables. The statements covering the traffic passing through the Detroit River, however, leave much to be desired. It is to be hoped that our government will soon take the necessary steps for collecting such statistical data as will make it possible to present with some degree of accuracy at least the broad features of our internal commerce.

I shall now attempt to show, but in a somewhat roundabout way, what share of the flour and grain traffic from the West to the East has fallen to the lakes and what portion has been secured by the railroads. The figures which will be given should in no case be wrested from their context. Conditions which obtained at the beginning of the period under consideration no longer exist, and thus the statistics standing by themselves would be very misleading.

The transportation of flour and the chief three cereals—corn, wheat, and oats—will be investigated. In the case of each one of these commodities the receipts at the principal eight Atlantic ports will be compared with the receipts by water at the chief lower lake ports. If the receipts at the Atlantic ports increased at a more rapid rate than those of the lake ports it may be legitimately inferred, if all circumstances except those of transportation remained unchanged, that the railroads were proving the stronger competitor, and *vice versa*. The conditions, however, as will be shown as each commodity is considered, have not remained fixed.

Attention is first invited to the movement of wheat; the transportation of flour will next be taken up. The order of consideration has been purposely changed because the movement of flour is partially explained by the circumstances which have effected the alterations in the shipment of wheat. Nearly all the grain shipped by lake is received at Buffalo and Erie and therefore the receipts of these two ports may be regarded as fairly representing the lake movement. Moreover, the relation between the receipts of grain at these ports and the other lower lake ports has not materially changed, so, for comparative purposes, the

amounts received at Buffalo and Erie may be assumed as reflecting the whole movement by lake. In the comparisons which will be instituted the total receipts at the lower lake ports by lake have not been used for the reason that such statistics cannot be had for the long series of years under consideration. The impossibility of securing statistics of the entire movement to and through the Atlantic states and the eastern portion of Canada has forced me to accept the receipts[1] at the chief centers of the grain and flour business on the Atlantic seaboard as indicative of the whole movement into the regions just mentioned. It thus appears that the value of the comparison turns (1) upon the accuracy with which the lake movement is reflected by the receipts at Buffalo and Erie and (2) upon the permanence of the proportion existing between the total movement to the seaboard and that to the selected ports. As has already been stated the receipts at Buffalo and Erie reflect, with considerable exactness, the total movement by vessel to the lower lake ports. As to whether the proportion between the total movement to the seaboard and that to the selected ports has remained the same, we cannot speak with the same assurance, for we have but few statistics to assist us in forming opinions. As the exports of wheat seem to have maintained a fairly constant relation to the total production of wheat in the United States — yearly fluctuations being left out of account — it may be assumed that the receipts at the seaboard ports of wheat for export have not varied greatly. The question then remains as to whether or not the total receipts at the seaboard ports, less the quantities exported, have increased at as rapid a rate as the receipts at all the other points combined. This question must probably be answered in the negative and for two reasons. In the earlier years of the period under consideration the smaller interior cities seldom enjoyed as favorable freight rates as the larger cities, and so the former often obtained their supplies

[1] Instead of the receipts at Newport News and Norfolk I have used the exports, for the latter alone represent the traffic which may be regarded as competitive between the lakes and the railroads. The other ports selected are Montreal, Portland, Boston, New York, Philadelphia, and Baltimore.

from the latter. And in the earlier years, when the eastern states produced a large portion of the wheat consumed, the smaller cities of the localities where the grain was raised would be sure to obtain the surplus, leaving the larger cities to look to the more remote regions for the satisfaction of their necessities.

By examining the tables in the Appendix (p. 418) it will be seen that from the beginning of the period under examination (1868) down to the year 1876 the combined receipts of wheat at Buffalo and Erie by lake were, although varying from year to year, somewhat more than one-half as large as those of the selected Atlantic ports. In 1876 this relation was slightly changed and for the first time the receipts of the Atlantic ports were more than double those of the two lake ports; there was, however, no great change, as the receipts at the former ports were 42,881,000 bushels and at the latter 21,147,090. During 1877 the lake ports regained their former position, the receipts being 25,791,491 bushels, while the receipts at the Atlantic ports were 46,828,000 bushels. Thus far the relation existing between the receipts at the lower lake ports and at tide water on the Atlantic coast have remained fairly constant, although the aggregate receipts have increased appreciably. A great change took place during the next five years. The ratio between the receipts at the lower lake ports and the Atlantic ports was very much altered; instead of being about as one to two, the ratio was now about as one to three and one-half; for the five-year period the aggregates stood at 172.6 million and 548.6 million bushels respectively. For the year 1881 the receipts at the Atlantic ports were more than four times as large as the receipts at Buffalo and Erie. In 1883 there was a partial return to the relations which formerly obtained, and in 1884 there was a still further change, so that for this year the receipts at the Atlantic ports lacked just a trifle of being double those of the lake ports. For the three succeeding years there was no great change. But in 1888 and in the following years the situation changed so much that for the year 1895 the receipts at Buffalo and Erie almost equaled those of the selected Atlantic ports, the receipts of the

former being 49,033,160 and of the latter 49,205,000 bushels. This proportion during 1896 was changed somewhat in favor of the Atlantic ports.

Thus far nothing but the superficial facts have been presented. These seem to show that the railroads and the lakes maintained a pretty even struggle during the decade beginning with 1868, and that for five years thereafter the railroads gained a decisive advantage and then for a few years waged a stubborn contest, but only to be utterly driven from the field in the years from 1888 to 1896. The facts thus far presented, however, are wholly inadequate for an understanding of the events which have taken place. Conditions have radically changed. The striking fact in the history of wheat growing in the United States during the past thirty years has been the westward and northward movement of the surplus wheat-producing areas.[1]

[1] In speaking of the great wheat-producing areas in this paper I refer only to the wheat-growing region east of the Rocky Mountains. The shifting of areas is made clear by the following table:

PRODUCTION OF WHEAT.

(,000 omitted.)

1869[1]		1879[2]		1889[3]		1895[4]	
States and territories	Yield, bushels	States and territories	Yield, bushels	States and territories	Yield, bushels	States and territories	Yield, bushels
Illinois	30,128	Illinois	51,111	Minnesota ..	52,300	Dakotas ...	90,319
Iowa	29,436	Indiana.....	47,285	Dakotas	40,945	Minnesota..	65,584
Ohio	27,982	Ohio	46,015	Illinois	37,389	Ohio	32,216
Indiana.....	27,747	Michigan ...	35,533	Indiana	37,319	Kansas	22,919
Wisconsin ..	25,616	Minnesota ..	34,601	Ohio	35,559	Penn.....	20,456
Pennsylvania	19,673	Iowa	31,154	Kansas.....	30,399	Indiana ...	20,294
Minnesota...	18,866	Missouri	24,967	Missouri	30,114	Illinois	19,061
Michigan ...	16,265	Wisconsin ..	24,885	Michigan ...	24,771	Missouri ...	18,499
Missouri	14,315	Pennsylvania	19,462	Pennsylvania	21,505	Michigan ..	15,238
New York ..	12,178	Kansas	17,324	Wisconsin...	11,699	Nebraska ..	14,787
Kentucky ...	5,729	Nebraska ...	13,847	Kentucky...	10,707	Iowa	13,655
Kansas	2,390	New York...	11,588	Nebraska ...	10,571	Kentucky..	9,501
Nebraska ...	2,125	Kentucky ...	11,356	New York ..	8,305	Wisconsin .	8,616
Dakota	171	Dakota	2,830	Iowa	8,250	New York .	7,301

[1] *Ninth Census: Industry and Wealth*, p. 83.

[2] *Tenth Census*, vol. iii. p. 177.

[3] *Report on the Statistics of Agriculture in the U. S. at the Eleventh Census*, p. 16.

[4] *Report of the Chicago Board of Trade*, 1895, p. 182.

At the beginning of the period under consideration New York and Pennsylvania held prominent places among the wheat-producing states, and the great wheat-raising states were for the most part on the southern shores of the chain of Great Lakes. By the middle of the eighties all this was changed and a large proportion of the surplus wheat grown in the United States was harvested in the far Northwest—the Dakotas and Minnesota being the principal wheat-growing states. The last column of the foregoing table discloses the present importance of these states, two of which produced no surplus wheat until the middle of the period under examination. The westward and northward movement of the wheat-raising areas has had a very decisive influence in the selection of the agencies employed in the movement eastward of the grain produced. When the grain to be shipped was raised in Ohio and Indiana, and in the southern portions of Michigan and Illinois, it was almost sure to go by rail, for in nearly all cases shipment by water would involve a short rail haul to the lakes with its high local rates, and in some cases, after the grain reached the lake, it would be only slightly advanced in its eastward journey by lake shipment. Charges of transshipment in the case of the short lake shipment would be of relatively greater importance than in the case of the longer lake shipment. In the early days the grain grown in the West was produced in regions or carried to places where the railroads were in a favorable position to compete for it. Most western wheat found its way to Chicago or Milwaukee. From these points the railroads possess a decided advantage over the lake carriers in the point of distance, for the latter must round the lower peninsula of Michigan while the former run directly across country to their destination. From Chicago to Buffalo by lake is 889 miles,[1] while the distance from Chicago to New York City by the shortest rail route is but 912 miles.[2] From Buffalo to New York

[1] *Eleventh Census: Transportation Business*, part 2, p. 290.

[2] Chicago to New York City over the Pennsylvania railroad. By rail the distances from Chicago to the different seaboard cities are as follows:

To Boston,	1000 miles
To Baltimore,	802 "

City by the shortest rail route is 410 miles.[1] It thus appears that every mile covered in the passage to Buffalo by lake results in an effective eastward movement of .564 of a mile. By the westward and northward movement of the surplus wheat-producing region the situation has been wholly changed. The districts which formerly produced a surplus that was almost certain to go by rail now grow but little if any more wheat than will satisfy their own necessities. But the location of the new wheat-growing areas is the important factor. These districts are located directly west of Lake Superior. This fact is clearly shown by the crop maps of the Eleventh Census:[2] the production of wheat in the far North has been greatly increased since these maps were published as will be seen by an examination of the table on page 359. As a result of this northward and westward movement of the wheat fields, the railroads have lost the advantage in the point of distance which they formerly possessed. By the shifting of the wheat-growing districts the lake carriers have been placed upon terms of substantial equality with the railroads. In shipping by lake from Chicago it was found that every mile traversed in the passage to Buffalo resulted in an effective eastward movement of but .564 of a mile.

Shipment by water from the head of Lake Superior is not accompanied by this wasteful expenditure of energy. Every

To Philadelphia,	822 miles
To Newport News,	896 "
To Norfolk,	984 "

—*Railroad Gazette*, vol. xxix. No. 13, p. 215.

[1] From Buffalo and Erie the distances to the seaboard ports by the shortest routes are as follows:

Buffalo to New York,	410 miles
Buffalo to Boston,	481 "
Buffalo to Philadelphia,	418 "
Buffalo to Baltimore,	402 "
Erie to New York,	512 "
Erie to Boston,	569 "
Erie to Philadelphia,	506 "
Erie to Baltimore,	490 "

—*Railroad Gazette*, p. 216.

[2] *Eleventh Census: Statistics of Agriculture*, Crop Map No. 13.

mile the grain is moved literally results in its being practically one mile nearer one of our great exporting ports.[1]

The increased importance of the shipments of wheat from the far Northwest in the receipts at Buffalo and Erie is made clear by the following table covering the movement of wheat through the St. Mary's Falls Canal.

MOVEMENT OF WHEAT.

(,000 omitted.)

Year	Movement through St. Mary's Falls Canal	Receipts at Buffalo and Erie	Year	Movement through St. Mary's Falls Canal	Receipts at Buffalo and Erie
1880	2,106	44,477	1891	38,817	83,749
1882	3,729	27,680	1892	40,995	86,085
1884	11,986	34,692	1893	43,482	71,578
1886	18,991	42,575	1894	34,869	52,450
1888	18,596	27,865	1895	46,218	49,033
1890	16,217	25,034	1896	63,256	60,054

By the above table it appears that the movement of wheat through the St. Mary's Falls Canal now just about equals the combined receipts of the two prominent lower lake ports—Buffalo and Erie. Were the receipts of the lower lake ports no larger than the shipments from the lake ports other than those of Lake Superior, the receipts of the selected Atlantic ports would have much more than held their own with the receipts of Buffalo and Erie. A comparison upon this basis would be worthless, however, because the whole situation has changed. That the railroads are less able to compete with the lake route than formerly cannot be inferred from a comparison of the receipts

[1] In comparison with certain rail routes, however, the lake route from the head of Lake Superior does not appear in this favorable light. Either the Duluth, South Shore and Atlantic, or the Minneapolis, St. Paul, and Sault Ste. Marie in connection with the Canadian Pacific affords a much shorter line to a tide-water port (Montreal) than do the lakes and the railroads to any of our Atlantic ports. These all-rail lines may in the future effectively compete with the lake carriers in the transportation of grain to certain regions. It does not follow because these roads have not done so in the past that they will not do so in the future. The discussion of this point, however, would lead us too far afield and therefore it will not now be taken up.

of the lower lake ports and of the Atlantic ports, for the railroads never were competitors for the traffic of the far-off region which now produces the bulk of our surplus wheat. The existing status of the struggle between the railroads and the water lines will not be discussed further at this point.

The statistics for the transportation of flour show that the movement of this commodity very much resembles that of wheat. For the first three years (1868–1870) of the period under consideration the receipts at Buffalo and Erie were about one-fifth of those at the selected Atlantic ports. Then for several years, but not without occasional setbacks, the receipts at the seaboard ports gained on the receipts of the lower lake ports, until in 1877 the receipts of the former ports were more than ten times as large as those of the latter. After 1877 there was a reverse movement and in 1883 this had gone so far that the relations which obtained at the outset were about restored. During the next two years there was practically no change, but in 1886 the lake ports made a decided gain upon the seaboard ports, and in 1889 increased this gain so much that the receipts of the lake ports were more than one-half as large as those of the seaboard ports. Since 1889 there has been no change of note. The yearly alterations which took place are shown in the Appendix on page 418.

A strong resemblance in the movement of flour and of wheat will be noticed on comparing the figures (in the Appendix) covering the movement of flour with those presenting the movement of wheat. The general tendencies have been in the same direction, but the movement has not proceeded so far in the one case as in the other. The shifting of the surplus wheat-producing districts has been accompanied by a corresponding movement of the great milling centers. From 1878 Minneapolis has, with but few interruptions, steadily increased her output of flour, reaching the enormous total of 12,874,890 barrels in 1896. At the head of Lake Superior, in the cities of Duluth and West Superior, there has recently sprung up another important milling center.[1]

[1] The subjoined table will show the development of these two milling districts.

The milling industry has followed the wheat-growing region westward and northward to a large extent. From this it follows that the lakes are now in a more favorable position for competing for the flour traffic than formerly. That a large portion of the increased receipts of Buffalo and Erie originate in the Northwest is evidenced by the statistics of the flour moved through the St. Mary's Falls Canal.[1] The shipments from Minneapolis by the Minneapolis, St. Paul, and Sault Ste. Marie Railroad have the same effect, since the bulk of the flour carried by this road

ANNUAL PRODUCTION (BARRELS).

(,000 omitted.)

Year	Minneapolis[1]	Duluth[2]	Year	Minneapolis[1]	Duluth[2]
1878	941		1890	6,989	431
1880	2,052		1891	7,878	673
1882	3,176		1892	9,750	1,094
1884	5,318		1893	9,378	876
1886	6,168		1894	9,401	918
1888	7,057		1895	10,582	2,978[3]
1889	6,089	84	1896	12,875	3,120[4]

[1] *Reports of the Trade and Commerce of Minneapolis.*

[2] *Reports of the Trade and Commerce of Duluth.*

[3] The output of the Duluth and West Superior mills.

[4] Flour manufactured at "Head of the Lakes." *Review of the Trade and Commerce of Duluth*, compiled by the Duluth Chamber of Commerce.

[1]MOVEMENT OF FLOUR (BARRELS).

(,000 omitted.)

Year	Through the canal[1]	From Minneapolis by M. St. P. & S. S. M. R. R.[2]	Year	Through the canal[1]	From Minneapolis by M. St. P. & S. S. M. R. R.[2]
1880	524		1891	3,780	1,201
1882	344		1892	5,418	1,684
1884	1,248		1893	7,421	1,720
1886	1,759		1894	8,966	1,458
1888	2,191	931	1895	8,902	2,111
1890	3,239	1,157	1896	8,883	2,420

[1] *Statement of the Commerce through the St. Mary's Falls Canal*, a document prepared by MR. E. S. WHEELER, the government officer in charge of the canal.

[2] *Reports of the Chamber of Commerce of Minneapolis.*

is transshipped to lake vessels at Gladstone, a port on the northern shore of Lake Michigan.

It appears, then, that the shipments of flour through the St. Mary's Falls Canal plus the shipments of flour from Minneapolis by the Minneapolis, St. Paul, and Sault Ste. Marie Railroad are now about as large as the total receipts of Buffalo and Erie. For 1895 the former were actually larger than the latter.[1] This brings us to the main consideration. We find in the case of flour, as in the case of wheat, that the shifting of the places of production has placed the water carriers in a more favorable position to withstand the competition of the railroads. The lake carriers are no longer handicapped by an excessively circuitous route.[2]

In striking contrast with the movement of wheat and its manufactured product, flour, is the eastward movement of corn. It appears from the tables in the Appendix (page 419), showing the receipts of the selected lake and seaboard ports, that the receipts of these two groups of ports, although they have varied greatly during the period under consideration, have moved together and at about the same rate. From 1868 to 1876 the lake receipts were about one-half as large as those of the seaboard, then for a half dozen years the seaboard receipts gained somewhat upon the receipts of the lake ports. The year 1882 was, in some respects, anomalous; the receipts of the lake ports almost equaled those of the seaboard ports, the former being a little more than 24 millions of bushels and the latter somewhat more than 28 millions.[3] For the next four years

[1] This fact does not, however, throw discredit upon the method of approaching the problem of the general eastward movement of the several commodities under investigation, for the total shipments of flour from Minneapolis by the "Soo" railroad are not transshipped to lake vessels. And the receipts at Buffalo and Erie do not represent the total receipts of the lower lake ports as fully as the shipments through the "Soo" canal plus the shipments over the "Soo" railroad represent the shipments from the upper lake ports. It should also be remembered that at the outset I disclaimed all intentions of making an exact mathematical demonstration.

[2] For qualifications see note on page 362.

[3] The receipts of this year were far below the normal, and in this fact is to be found the explanation of the variation of the relation. Just why a small movement should affect the seaboard receipts more than the lake receipts will be shown later.

there were wide variations and from then (1887) the lake receipts, with the exception of 1892, were somewhat more than one-half as large as those of the seaboard receipts. During 1896 the seaboard receipts were more than double those of the lake ports, the former being 113.5 million and the latter but 54.7 million bushels.

The eastward movement of corn thus stands out in strong contrast with that of wheat and flour. In our investigation of these breadstuffs we found that after the opening of the eighties the transportation of these commodities by water gained very rapidly upon the movement by land and that at the close of the period the quantities received at Buffalo and Erie by water were practically equal to the total quantities received at the leading seaboard cities. The explanation of this divergence of tendencies is not far to seek. It is found in the fact that the shifting of the surplus corn-producing region has been westward, and not northward as well as westward — it has been along the parallels. Our surplus wheat, as was seen, is now largely grown in the far Northwest — in Minnesota and in the Dakotas. The great wheat fields are now back of Lake Superior and thus in a favorable position for the movement by lake of the crops gathered from them. These states have thus far produced but little surplus corn and will probably never produce much, as they lie almost wholly without the corn belt. In the southern portions of Minnesota and South Dakota corn can be grown successfully, but these areas are limited in extent. The great surplus corn region now lies to the west and southwest of the southern portion of Lake Michigan,[1] falling within the states of Illinois, Iowa, Missouri, Kansas, and Nebraska, and as a consequence, if corn is to go by water to the East it must be carried from the ports at the head of Lake Michigan on the circuitous journey around the lower peninsula of Michigan. The advantages of the rail lines running to the Atlantic ports, in point of distance, will not be further discussed, as this matter has already been dwelt upon.

[1] This is very clearly shown by Crop Map No. 9, *Eleventh Census: Statistics of Agriculture.*

As the surplus corn-producing region now lies to the southwest of the head of Lake Michigan rather than directly to the west of it, there has been a very decided tendency to ship corn for export by the all-rail lines to the South Atlantic ports, notably Baltimore, Philadelphia, Newport News and Norfolk. Shipments by the all-rail routes to these ports will probably increase. The distances from the corn-growing districts to the South Atlantic ports are less than to the North Atlantic ports. There is another reason, and a much weightier one, for the movement to the southern ports from Chicago. Philadelphia has a differential rate in its favor of two cents and the other ports one of three cents per 100 pounds, as compared with New York. When these differentials were agreed upon in 1882 they were given the southern ports to offset the advantage New York possessed in the matter of ocean rates. Since 1882, however, the situation has radically changed. New York has, in good part, lost the advantage she then possessed in the item of ocean rates, and thus the reason for the existence of these differentials has disappeared. The differentials, however, not only remain but have become much more effective than when adopted. Nominally the differentials remain as they were fixed in 1882, but really they are much higher than they were then. This is true because the rates have fallen very decidedly while the differentials have remained absolutely stationary. Had the differentials been fixed upon a sliding scale, falling as the rates fell, the southern ports would not have the advantage which they now possess. What might have been easily arranged in 1882 can now be brought about only by a serious struggle, and one which the northern trunk lines are not likely to make. The grain traffic is an important item to the southern roads, and they will wage a desperate struggle to retain it. This is fully recognized by the more prosperous northern roads which have a more profitable miscellaneous business. We have here a case of a wide difference in marginal utility of a certain traffic to two different sets of roads. The Baltimore and Ohio, the Chesapeake and Ohio, and the Norfolk and Western — roads hungry for traffic — set a much higher

value upon the traffic in corn, which at best yields but a small profit, than do the New York Central and the Pennsylvania roads, whose terminal yards are already crowded, and can only be enlarged at a great outlay of money.

As these southern roads also tap the territory to the south and west of Chicago it may be expected that they will also, to an increasing extent, divert grain directly to the southern ports instead of permitting it first to go to Chicago and then to take it to those ports. A large portion of our surplus corn being produced in the territory to the south of Chicago, this diversion may seriously affect the corn trade of this city.

The table covering oats shows that its eastward movement differs widely from that of each of the other commodities considered. For the first four years of the period under investigation, namely, 1868 to 1872, the receipts by lake at Buffalo and Erie were almost equal to one-half the receipts of the eight selected Atlantic ports, the former being 33.8 million and the latter 68.5 million bushels. Beginning with the year 1872 the receipts of the lower lake ports not only declined relatively, but even absolutely, and in the year 1880 reached the very small aggregate of 654,350 bushels. For the next four years the receipts were somewhat larger, but in 1885 they again fell very low, almost reaching the small amount received in 1880. The receipts at the Atlantic ports, on the other hand, steadily rose from 23.7 millions in 1880 to 40.4 millions of bushels in 1885. In 1886 the lake receipts increased slightly and those of the seaboard ports fell off somewhat. Since 1886 the receipts of the lake ports have grown much more rapidly than those of the Atlantic ports, the receipts of the former ports for 1896 being 40.5 million, and those of the latter 78.9 million bushels.

While investigating the transportation of wheat and corn it was found that the shifting of the great producing areas was a factor of prime importance in determining the route by which the crops would go to market. In the case of oats the movement was very largely westward and but slightly northward, so the situation has not been so greatly changed as in the case of

wheat. Most of the surplus oats is now grown in territory directly west of Chicago. There has been, however, something of a northward movement of the oats-growing districts, and the shipments by the northern routes — by lake from the head of Lake Superior and by the Minneapolis, St. Paul and Sault Ste. Marie Railroad — have increased very rapidly, and in no small measure explain the unusually large receipts at Buffalo and Erie in 1896. It may be expected that shipments over the northern lines will increase largely, and therefore Chicago may lose the prominent position she has long maintained in the handling of this grain.

IV.

THE TRAFFIC THROUGH THE GULF PORTS.

Not only have the east-and-west trunk lines diverted traffic from the lakes, but so have also the Mississippi River and the railroads leading to the gulf. This southern movement, however, never assumed large proportions until the year 1896; and for this year the increased traffic was largely accounted for by the increased movement of corn. Our total exports of corn last year having been unusually large, it may be supposed that the sudden prominence of the gulf ports[1] in the shipment of grain is ephemeral. But such a view is hardly justifiable. If the Mississippi River were the only competing route to the gulf ports the southern route would perhaps not greatly encroach on the traffic now moving over the lakes and the east-and-west trunk lines. But the Mississippi is no longer the only line seriously competing with the great east-and-west routes to the Atlantic ports. The railroads leading to the gulf are in certain sections competing with the great east-and-west routes. As regards the railroads east of the Mississippi River, this is especially true of the Illinois Central, which has recently completed very excellent terminal facilities at New Orleans for hand-

[1] For the exports from the leading two gulf ports, New Orleans and Galveston, see Appendix, p. 420. The exports rather than the receipts are given, because the former alone represent competitive business.

ling grain. The small export movement of grain via New Orleans in past years has been largely due to the inadequate terminal facilities at that point. Although there may be an increased grain traffic over the Illinois Central, this enlarged business will not be at the expense of the lake route. Grain grown in the territory but a short distance south of Chicago and east of the Mississippi River does not go east over the lake route, for this is effectually prevented by the high local rates for the short haul to the lake ports. It need hardly be said that if the lakes cannot monopolize the flour and grain traffic from points situated immediately upon the lakes, such as Chicago and Milwaukee, they cannot successfully compete for the shipment of these commodities from points south of Chicago. The senate select committee appointed in 1872 "to investigate and report upon the subject of transportation between the interior and the seaboard" took the position that "the railroad interests practically control the transport of grain from all that part of the states of Illinois and Indiana situated south of a latitudinal line sixty miles south of Lake Michigan."[1] The railroad interests here referred to did not include the railroads running to the gulf but merely the lines running to the seaboard. The grain produced in the region some little distance south of Chicago has been and in all probability will continue to be carried to the Atlantic ports. The railroads leading to the gulf have no advantage over some of those running to the Atlantic in point of distance;[2] and as ocean freight rates to European ports are materially higher than those from Atlantic ports, and as the gulf railroads obtain but little return freight, it is difficult to see

[1] Report of the Select Committee on Transportation Routes to the Seaboard, p. 24 (XLIII Congress, first session). Mr. Windom was chairman of the committee.

[2]

From Chicago to New York,	912 miles
From Chicago to Philadelphia,	822 "
From Chicago to Baltimore,	802 "
From Chicago to Newport News,	896 "
From Chicago to New Orleans,	926 "

The Railroad Gazette, quarto vol. xxix. No. 13, p. 215. The distance to New Orleans is that given by the time table of the Illinois Central Railroad, and is the distance over that line.

how these lines are going to draw traffic in the territory east of the Mississippi River and north of St. Louis from the northern trunk lines, and it is still much more difficult to understand how the south-bound lines will encroach upon the traffic which has gone over the lakes. The south-bound lines have easy grades and are not troubled with snow and ice, but these advantages are not sufficient to offset the disadvantages under which they operate.

The movement of flour and grain from the regions west of the Mississippi presents an entirely different problem. In this territory the railroads leading to the gulf will undoubtedly carry a great deal of grain to the gulf ports that formerly went to the Atlantic ports over the rail-and-lake route and the all-rail lines. Roughly speaking, the grain grown in the territory north of the east-and-west line passing through the southern boundary of Iowa will continue to go over the eastern rail and water lines. And probably the grain produced in northwestern Missouri will continue to move over the old routes. On the other hand, the grain grown in Missouri south of the Missouri River and in the southern half of Kansas and in all the region lying south of these two states, is equally sure to go, if intended for export, by the south-bound lines to the gulf. Between these two regions lies a district of debatable territory formed of the northern half of Kansas, the southern part of Nebraska, the extreme southwestern part of Iowa, and of northwestern Missouri. This region includes much of the best agricultural land of the country west of the Mississippi River. It may therefore be expected that the eastern lines will not relinquish the traffic of this territory without a struggle. As the railroads leading to the gulf have erected or are erecting terminal facilities for the handling of grain on a large scale, particularly at their southern termini, they may be expected to wage a spirited contest for the traffic of the disputed territory, and as a consequence grain rates to the Atlantic seaboard and to the gulf will probably fall in the near future. The most southern of the east-and-west trunk lines belonging to the Central Traffic Association have been

forced by the association to maintain rates, and as a result they have seen much of the traffic which they at one time handled go to the gulf by the river-and-rail lines. The southern lines of the Central Traffic Association did not regard this traffic as valuable enough to warrant them in breaking loose from the association, and the association preferred to lose some traffic to the gulf lines rather than reduce rates on all east-bound traffic to such a point as would prevent grain from the southern limits of their territory from finding an outlet through the gulf ports. Although the Central Traffic Association viewed with equanimity the diversion of a portion of its traffic to the gulf ports it does not follow that the association will much longer permit the diversion to the gulf ports of the traffic originating in the territory which has supplied the railroads forming the association with much of their east-bound freight. Up to the present time the rail-and-water lines and the all-rail lines to the Atlantic seaboard have regarded themselves as the natural heirs to the whole of the traffic originating in or destined for the entire West. To the lake carriers and the managers of the east-and-west trunk lines the westward course of empire has always presented itself as new traffic for them. For many years there has been an increasing tendency for commerce to move on east-and-west lines. The opening of the Erie Canal in 1825 gave the first decisive impulse to commerce to move across the country instead of down the Ohio and Mississippi rivers. In later years the construction of the great trunk lines, parallel to the northern water route formed by the Great Lakes and Erie Canal, strengthened a movement which had already become firmly established. On the Atlantic seaboard New York and Philadelphia have come to be looked upon as the natural outlets and inlets for the commerce of the whole country; and, in a like manner, Chicago, by reason of its favored position on the lakes and its excellent railroad facilities, has come to be viewed as the natural distributing and receiving point for the entire West.

This idea, that Chicago was to be the gateway through which the commerce to and from the West would move, received a

severe shock some years ago. As the farmer has pushed westward and still farther westward it has become easier and easier to make a flank attack upon the old lines of commerce. This has been rendered doubly easy where the new regions settled have been either north or south of the great east or west line of movement. It has already been shown how with the westward and northward migration of the wheat fields the wheat and flour traffic avoided Chicago and sought the more northern routes. Most of this business still goes through our chief Atlantic ports, but with the rapid enlargement and improvement of Canadian transportation facilities now in progress it will be surprising if Canadian ports, notably Montreal, do not secure a larger portion of the export grain business.

Let us now return to the movement of flour and grain through the gulf ports. The old east-and-west routes have recently been brought face to face with a new and serious situation in the central West and Southwest. The lines extending northward from the gulf are not disposed to allow the east-and-west lines to control this great traffic of the trans-Mississippi region. The gulf roads hold that the central west and southwest should export their surplus products through the gulf ports and receive imports through the same cities. This proposition is nothing short of revolutionary — it means a breaking away from the old channels of shipment through Chicago and New York and other eastern cities; further, it means that the northern water route and the eastern trunk lines are no longer to be the dominant power in moving the products of western farms. During the past year the railroads running to the gulf have been increased in number by the construction of the short line — the Kansas City, Pittsburg and Gulf Railroad.[1] This line, which was designed to make Kansas City independent of the eastern routes, extends from Kansas City almost due south to Port Arthur (Texas) at the head of Sabine Lake, an arm of the gulf. In the contest with the east-and-west lines this route will be found in the van. The distance to tide water from Kansas City is

[1] It is commonly known as the Port Arthur route.

much less by the Port Arthur route than by the eastern rail routes, and therefore very much less than by the way of the Great Lakes.[1] But too much must not be expected from this route simply on the ground of its being much shorter than the eastern lines to tide water. It need hardly be said that cost of service does not vary as the distance, and that rates are not fixed on a mileage basis. Easy grades, straight tracks, a large traffic in both directions, and cheap fuel are fully as important as the question of distance. So far as the first two items are concerned the Port Arthur route will compare very favorably with any of the eastern trunk lines; it can also secure fuel as cheaply as most of them. In respect to the remaining point, however, the eastern trunk lines have the advantage. Not only will the traffic over the new line be much less, at least for some time, than over the eastern trunk lines, but it will also be very largely in one direction unless this particular road is more successful in securing northbound traffic than the other gulf roads. If no freight can be found for the cars going north, the traffic going south must pay the cost, not only of its own movement, but that of hauling back the empty cars as well. It must be admitted that the outlook for this road securing a double haul is better than that of most, if not all, of the other railroads running north from the gulf. The Port Arthur route passes through some of the best timber land on the continent, and it may, therefore, confidently expect a large north-bound traffic in ties and lumber. As it passes through two large coal fields it may also hope to move large quantities of coal. Aside from these main items the managers of this line expect to haul a portion of the imports consumed in the territory tributary to their railroad and

[1] The following table of short line rail distances from Kansas City will make this clear:

From Kansas City to New York	1303 miles
From Kansas City to Philadelphia	1228 "
From Kansas City to Baltimore	1198 "
From Kansas City to Galveston	799 "
From Kansas City to Port Arthur	767 "

—*Manufacturers' Record*, February 19, 1897, p. 2.

also hope to develop a considerable traffic in early fruits and vegetables.

But even supposing that the Port Arthur route can haul grain from Kansas City to the gulf for less than the east-and-west roads can carry it to the Atlantic seaboard, can this line develop a large export business? Are there not adverse circumstances which will fully counterbalance the advantage of a low rate to the gulf? Will not higher ocean rates from the gulf ports and the unfavorable climate of the gulf region prevent the growth of a southern export movement? In answer to the first of these questions it may be said that ocean rates are less unfavorable from the gulf ports now than they were formerly, and that as the amount of freight which is being offered to vessels is increasing, there will be more steamship lines to southern ports and rates will be still further lowered. At this late day it is hardly necessary to answer the second question. The large amount of capital which has recently been invested in southern terminals for handling grain, by persons familiar with the climate, and the immense movement of grain through gulf ports during the year 1896 ought to be sufficient proof that the gulf climate does not rise as an obstacle to prevent the development of an export trade through the gulf ports.

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